

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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- During a meeting of the FUK-II (Research and Development) of the Diesel Motors Special Commission held on 18 May 1952, a treatise on the development of the internal combustion engine was discussed. During the discussion it was ascertained that the highly-supercharged diesel motor, used as a motive gas producer for, and coupled to, a gas turbine, has never been attempted. EKM KEB (Energie und Kraftmaschinenbau, Konstruktion und Entwicklungsbüro), Dresden, was designed to conduct experiments on the economic application of this theory to plant management. The 720 HP motor from Karl Liebknecht Heavy Machine Construction Plant (Schwermaschinenbau) is to be used to initiate the program.
- The diesel motor development sections reported briefly on their work and presented their plans for 1953 for discussion and approval.

a. KMB Rossau (VVB EKM):

- The prototype designs for 1 NVD 18, 2 NVD 18, 3 NVD 18, and 5 NVD 21 were nearly completed.
- Results of the preliminary trials of the "Wirbelkammern" with converted engines type RA 42 were:

$P_e \approx 0.6 \text{ kg/cm}^2$, and
 $b_e \approx 190 \text{ g/HP}$
- The one-cylinder trial engine NZD 18 showed the following results:
 $P_e \approx 4.7 \text{ kg/cm}^2$
- The larger one-cylinder trial design NZD 36 was not yet completed.
- A new development order for crankshafts for type V 44 (Goerlitz) is currently under production.

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(6). 1953 production plans include:

- (a). Further development of the 4-stroke Bauzeihe (sic)² NVD 21.
- (b). Further development of the 4-stroke engines 1 NVD 12.5 and 1 NVD 18.
- (c). Further development of the 2-stroke NZD 18. Construction of a new improved 2 cylinder model.
- (d). Further development of the 2-stroke NZD 36; further testing of the 1 cylinder trial engine. Construction of a 6 cylinder model.
- (e). Further development of the large injecting apparatus.
- (f). Experiments to find the most effective method of constructing a slow-running large size diesel engine of 600-800 H.P. cylinder power (sic) (600 bis 800 PS Zylinderleistung).

b. EKM Diesel-Motorenwerk, Rostock VEB

- (1). The development of the NZD 48 type is still held up for lack of the crankshaft for the 1 cylinder engine.
- (2). Construction work has begun on type NZD 72.
- (3). By the end of 1953 construction work on type NZD 26 will be completed.
- (4). 1953 production plans include:

- (a). Construction and testing of an 8 cylinder engine 8 NZD 48.
- (b). Construction and testing of a 1 cylinder engine 1 NZD 72.
- (c). Construction and testing of a 4 cylinder engine 4 NZD 26.
- (d). In 1953 experiments in the use of heavy oil are to be carried out on a 1 cylinder engine KVD 43.
- (e). Development of welded crankshafts to be continued.

c. Schwermaschinenbau Karl Liebknecht
(Formerly Buckau-Wolff)

- (1). In 1952 the adaption of models DV 224 DV 136 and DV 148 for different numbers of cylinders will be completed.
- (2). No development program for 1953 was available at the time of the meeting.

d. IFA Entwicklungswerk Chemnitz.

Developmental projects for the next year include:

- (1). KVD 9.5 - to be developed for use with 4 cylinders.
- (2). KVD 14.5 - the development of this (2-6 cylinders) is almost complete. An air cooling system is to be installed in 1953 - first in the 6 cylinder model.
- (3). KVD 18 - the 4 cylinder prototype is ready. The development work could not be quite finished as the trial engine has not been delivered. The 6 cylinder engine is now being constructed and should be ready in 1953. The development of the 8 cylinder engine will probably be set aside in favor of the 6 KVD 21 type.
- (4). KVD 21 (Johannisthal)

The 2 cylinder prototype engine is now undergoing trials. The construction of the 8 cylinder engine is almost completed. The development of the 6 and 12 cylinder models is in view for 1953.

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(5). KVD 12.5 (Ludwigsfelde)

The 2 cylinder prototype should have finished its trials by the end of 1952. A further development in distributing valves is proposed for 1953.

(6). KVD 12.5 (Phaenomen)

The experiments on the 4 cylinder engine are complete. The construction of a 6 cylinder engine was planned, but it will probably be replaced by the air-cooled KVD 14.5.

(7). Opposed piston engine (Gegenkolbenmotor) (Johannisthal)

Constructional changes have been made in view of high oil consumption. FUK has also ordered various alterations. A new prototype will be ready in 1952. Further tests will take place in 1953.

(8). IFA stated that experiments with Gleichstromspuelung were to be continued. FUK was against this but was prepared to await further details from IFA.

e. Geraetebau, Schoenebeck, SAG

(1). The recently developed 6 cylinder engine 6 NVD 14 is being tested.

(2). No further models are planned at present.

f. Institut fuer Kraftfahrtwesen - TH Dresden

(1). The development of an engine with variable stroke (Hub) is to continue in 1953.

(2). In addition there are plans for the development of a low pressure diesel engine.

3. Discussions on the development of an oil cooler will take place at the next FUK meeting as the preliminary work at KMB Rosslau has not yet been completed.

4. A larger research station is to be built for experiments and testing of ships' machinery (Schiffsantriebsanlage) in which, among other things, diesel engines will be tested. The Ministry of Machine Construction and the State Planning Commission will make the final decision.

5. It was suggested that ships of the inland waterways fleet should be fitted with generator gas motors; this method has been used in West Germany with great success. FUK recommended the use of diesels and suggested the conversion of a Goerlitzer type.

6. In answer to a question from FUK, the Ministry for Machine Construction stated that the Ludwigsfelde is so far only a building project. Owing to uncertainty regarding Halberstadt, Rostock and Goerlitz, it is proposed to establish an Energie-maschinen (power machine) concern in the area of Berlin.

1.

Comment. Fachunterkommission I (Special Sub-commission I).

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2.

Comment. Possibly Baureihe: construction series.

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